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# A New and Endangered Species of *Decaspermum* (Myrtaceae) from East-Central Queensland

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**ABSTRACT.** The new species *Decaspermum struckoiligum* N. Snow & Guymer is described from Queensland. It is distinguished from *Decaspermum humile* (G. Don) A. J. Scott in Australia by its narrower and more acute leaves, shorter petioles, and unlobed mature fruits. The new species lacks the “vertical false septum” that has been reported to occur in the middle of each locule between seeds in *Decaspermum*, and which has been used in part to diagnose *Decaspermum* from related genera. Instead, the three seeds that typically occur per locule in the mature fruit are completely surrounded by an encapsulating membrane. Typically, seeds within the membrane are weakly fused and lack any intervening tissue between them. A key is provided to separate the new species from *Decaspermum humile*.

**Key words** Australia, *Decaspermum*, endangered, Myrtaceae, Myrtinae, Queensland.

*Decaspermum* J. R. Forster & G. Forster is a genus of approximately 30 species with fleshy fruits in Myrtinae (Myrtaceae) that ranges from Indomalaysia to at least Tahiti (Snow, 2000). Relatively little attention has been focused on the genus since the revisionary work of Scott (1979a, 1979b, 1980), apart from a generic transfer by Parnell and Nic Lughadha (1992) and observations by Chang and Miao (1982) regarding its occurrence in China. In Australia the genus is represented by two species, *D. humile* (G. Don) A. J. Scott and the new species described herein, *D. struckoiligum* N. Snow & Guymer.

Descriptions are based primarily on herbarium material (BRI, CANB, NSW) but include observations from wild and cultivated specimens. We use a general lineage concept (de Queiroz, 1998), in which species are hypothesized to represent tokogenetically closed genealogical lineages (Frost & Kluge, 1994; Davis, 1997) diagnosable by one or

more characters by ordinary morphological means (Snow, 1997). The characters studied overall are similar to those in Snow and Guymer (1999).

***Decaspermum struckoiligum*** N. Snow & Guymer, sp. nov. TYPE: Australia. Queensland: Port Curtis District, Struck Oil, 6 km E of Mount Morgan, 29°39'S, 150°28'E, 14 Nov. 1987, N. Hoy s.n. (holotype, BRI [AQ 455657]; isotypes, BISH, BRI, GREE, K, LAE, MO, NSW). Figure 1.

*Decaspermum* sp. “Mt. Morgan” in Henderson (1997).

Haec species a *Decaspermum humile* foliis ellipticis latioribus apice acutis non acuminatis supra plerumque hebetatis marginibus planis, petiolo 1.5–4.5 mm longo, hypanthio praecipue basi sericeo, fructa maturitate in sectiona transversali circulari distinguitur.

Erect multi-stemmed shrubs or small trees, up to 4 m tall. Bark smooth to somewhat flaky, gray or brown. Branchlets of current year round, gray to reddish brown, smooth, sparsely short sericeous; oil glands indistinct, sparse to common. Leaves discolorous, matte or slightly glossy above, matte below, decussate, opposite,  $\pm$  evenly distributed along branches, coriaceous. Leaf axils bearing 2 to several setose, ferruginous hairs. Petioles glabrous to sparsely sericeous, 1.5–4.5 mm long, glandular when young and becoming somewhat rugulose with age, olive-green to reddish, smooth to channeled above. Leaves elliptic, pinnately nerved, 18–55  $\times$  10–35 mm, base cuneate, apex acute, uppermost tip pointed to mucronate, margins flat; upper surface glabrous, oil glands prominent, visible without magnification or requiring 10 $\times$  magnification, dense, midvein flush; lower surface glabrous, oil glands prominent without magnification, dense, midrib slightly raised, lateral veins not visible or

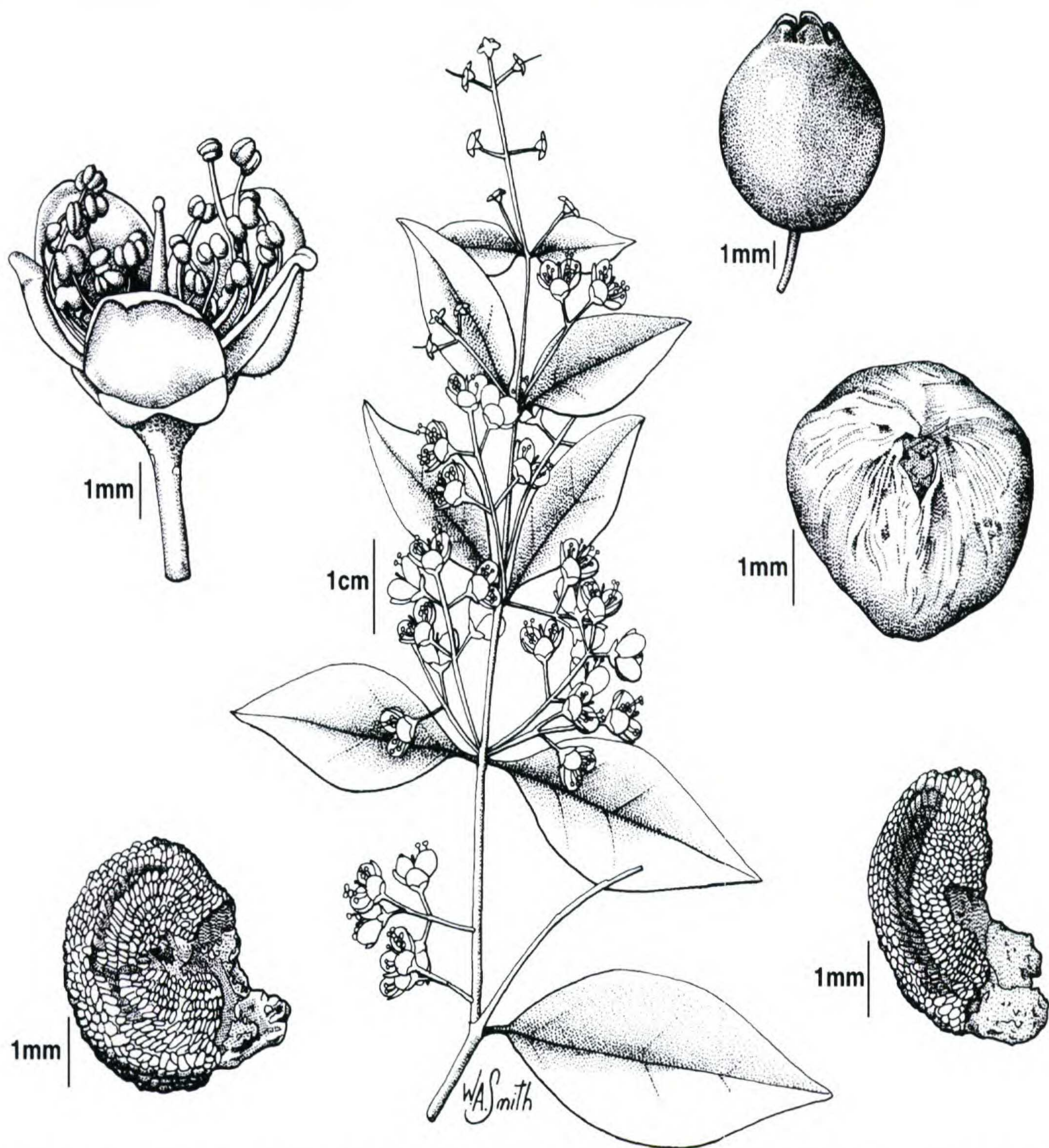


Figure 1. *Decaspermum struckoilocum* N. Snow & Guym. —Center, flowering branchlet (*D. Hoy* 3). —Top left, flower (*N. Hoy* AQ 455657). —Top right, mature fruit (*D. Hoy* AQ 476400). —Center right, encapsulating membrane of seeds (*D. Hoy* AQ 476400). —Bottom left and right, mature seeds (*D. Hoy* AQ 476400). (All vouchers at BRL.)

indistinct, intramarginal veins not visible or indistinct, up to 1.2 mm from margin. Inflorescence terminal or axillary, solitary or paired, paniculate (botryoid or metabotryoid sensu Briggs & Johnson, 1979), anthopodia occasionally present; peduncles subtending each flower rigid, 2.5–4.5 mm long, sparsely sericeous. Bracteoles 2, linear to narrowly triangular, 1.0–1.4 mm long, 0.3–0.5 mm wide, ascending to erect, shorter than base of sepal lobes, sparsely sericeous, soon deciduous in flower. Hypanthium cupulate, smooth, 1.0–1.7 mm long, sparsely sericeous (particularly at base), tube not

extending beyond ovary apex, oil glands common to dense. Calyx lobes 4 or 5 (sometimes both on a single plant), fused proximally beyond ovary, separate in bud, mostly greenish or somewhat petaloid on margins, broadly ovate to rounded, apex obtuse, free portions of lobes 1.2–1.5 mm long, glabrous to sparsely ciliate, glabrous below, persistent in fruit, erect. Petals 4 or 5, yellowish white, widely ovate to oblate, 3.0–3.5 × 2.5–3.5 mm, glabrous to minutely ciliate, glabrous below, oil glands common. Stamens 16 to 25, in 1 to 3 whorls, included, filaments up to 3.5 mm long; staminal disk glabrous;

ovary apex glabrous; anthers subglobose, dorsifixed, versatile, 0.5–0.8 mm long, dehiscent via longitudinal slits, eglandular. Style 2.5–3.5 mm long, glabrous; stigma terete to slightly capitate by virtue of subapical constriction of style. Fruit a soft berry, subglobose to globose, base rounded, up to 7.5 mm long and 8.5 mm wide, glabrous, dark bluish black at maturity. Ovaries 3- to 4-locular; placenta capitate, axile; ovules usually 3(2) per placenta, in 1 horizontal row, the seeds of each locule becoming surrounded by an encapsulating membrane in mature fruit (Snow, 1999, 2000); seeds up to 8 in mature fruit, rounded to somewhat reniform, flattened, dark brown, 2.2–3.7 mm long, adjacent seeds weakly fused, long (= embryonic) axis oriented vertically, outer testa hard, bony; cells of testa relatively large and irregularly elliptic. Embryo slightly curved, oil glands absent, starchy, endosperm absent, hypocotyl relatively thin and not swollen at tip and held on same plane as cotyledons, cotyledons straight, shorter than hypocotyl, folded backward sharply toward hypocotyl.

The specific epithet refers to the town of Struck Oil, around which the new species occurs.

*Phenology.* Flowering in October and November; fruiting November through February.

*Decaspermum struckoilicum* is restricted to the small town of Struck Oil and vicinity, roughly 30 km south of Rockhampton in east-central Queensland. It occurs in semi-evergreen vine thickets on reddish or chocolate soils, often in disturbed areas, and at elevations up to 300 m. The new species is only known from six collections and is currently listed as Endangered under the Queensland Nature Conservation Act of 1992. It also should be considered Endangered under IUCN standards following criteria B1 and C2a (Species Survival Commission, 1994). Little is known at the current time regarding the number or sizes of populations or whether the populations are stable. As such, a detailed survey of its status should be a high priority for conservation assessments.

Snow (1999) discussed the inaccuracy of the term “vertical false septum” (Scott, 1979a: 432, 1979b: 59) as a diagnostic character for the genus. The mature fruit of *Decaspermum struckoilicum* has no septum located in the middle of each locule. Rather, the three seeds that typically occur per locule in the mature fruit are completely encapsulated by a moderately thick tissue layer, but no tissue intervenes between seeds in an individual locule. Snow (1999) tentatively designated this tissue as the encapsulating membrane (see Fig. 1). Adjacent seeds in each locule are weakly connate but are

separated easily. When the encapsulating membrane is removed from the mature fruit, the remaining hypanthium wall is thin, suggesting its tissue may be derived at least partially from the one or more layers of the ovary wall. A more detailed anatomical study of this variation in tissue structure is needed and might enlighten relationships in *Decaspermum* (Snow, 1999).

#### KEY TO AUSTRALIAN SPECIES OF *DECASPERMUM*

1. Leaves elliptic, apex acute to mucronate, upper surface mostly matte, margins flat; petioles 1.5–4.5 mm long; hypanthium sericeous mostly at base; mature fruit lacking constrictions along locular walls in cross section . . . . . *D. struckoilicum*
- 1'. Leaves narrowly elliptic, apex acuminate, upper surface mostly glossy, margins slightly recurved; petioles (3–)4–7 mm long; hypanthium sericeous throughout; mature fruit somewhat constricted along locular walls in cross section . . . . . *D. humile*

*Paratypes.* AUSTRALIA. **Queensland:** Port Curtis District, Struck Oil, 6 km E of Mt. Morgan, 23°39'S, 150°28'E, 18 Nov. 1989, *Forster PIF 4984* (BRI, L), *Hoy s.n.* (BRI AQ 476400 + spirits, MEL, QRS); Struck Oil via Mt. Morgan, 23°4'-S, 150°2'-E, 22 Oct. 1984, *Hoy 3* (BRI); Struck Oil, property of D. McDonald, 23°37'S, 150°27'E, 7 Feb. 1997, *Forster et al. PIF20268* (BRI).

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#### Literature Cited

- Briggs, B. A. & L. A. S. Johnson. 1979. Evolution in the Myrtaceae—Evidence from inflorescence structure. *Proc. Linn. Soc. New South Wales* 102: 157–256.
- Chang, H. T. & R. H. Miao. 1982. Additions to the Myrtaceous flora of China. *Acta Bot. Yunnan.* 4: 17–25.
- Davis, J. I. 1997. Evolution, evidence, and the role of species concepts in phylogenetics. *Syst. Bot.* 22: 373–403.
- Frost, D. R. & A. G. Kluge. 1994. A consideration of epistemology in systematic biology, with special reference to species. *Cladistics* 120: 259–294.
- Henderson, R. J. F. 1997. *Queensland Plants: Names and Distribution.* Queensland Department of Environment, Brisbane.
- Parnell, J. & E. Nic Lughadha. 1992. Notes on Thai Myrtaceae. *Kew Bull.* 47: 703–706.
- Queiroz, K. de. 1998. The general lineage concept of species and the defining properties of the species category. Pp. 49–89 in R. A. Wilson (editor), *Species: New Interdisciplinary Essays.* MIT Press, Cambridge, Massachusetts.

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- Scott, A. J. 1979a. A revision of *Rhodamnia* (Myrtaceae). *Kew Bull.* 33: 429–459.
- . 1979b. The Austral-Pacific species of *Decaspermum* (Myrtaceae). *Kew Bull.* 34: 59–67.
- . 1980. A synopsis of *Decaspermum* (Myrtaceae) in Southeast Asia and China. *Kew Bull.* 35: 403–411.
- Snow, N. 1997. Application of the phylogenetic species concept: A botanical monographic perspective. *Austrobaileya* 5: 1–8.
- . 1999. Notes on generic concepts in *Rhodomyrtus*, *Archirhodomyrtus*, *Decaspermum*, and *Pilidiostigma* (Myrtaceae). *Austral. Syst. Bot. Soc. Newslett.* 99: 5–7.
- . 2000. Systematic conspectus of Australasian Myrtinae (Myrtaceae). *Kew Bull.* 55: 647–654.
- & G. P. Guymer. 1999. Systematic and cladistic studies of *Myrtella* F. Muell. and *Lithomyrtus* F. Muell. (Myrtaceae). *Austrobaileya* 5: 173–208.
- Species Survival Commission. 1994. IUCN Red List Categories. IUCN Council, Gland.